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SIGNIFICANCE OF ALBUMINURIA.

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SIGNIFICANCE OF ALBUMINURIA.

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THE significance of albuminuria in either the child or the adult is still under deliberation, and at the present time the whole question seems to be undergoing a thorough reinvestigation. The day has long since gone by when the mere presence of albumin in the urine was considered sufficient and complete evidence of the existence of Bright's disease. As albuminuria received greater and greater attention, observation revealed the fact that there were many cases in which the albumin was intermittent, and, that it might exist for years without apparent damage to the general health and vigor of the individual. Then appeared various theories, worked out from different stand-points, often conflicting, which were given names supposed to indicate the cause, or at least, to describe the appearance of the albumin, and we have now an intermittent and a latent albuminuria; to these must be added a temporary, a functional, a physiological and a cyclical albuminuria; an albuminuria of adolescents and one dependent upon toxic agents; also a cardiac, a dietetic, a febrile, an uric acid and oxaluric albuminuria; again, an albuminuria from irritation, from nervous excitement, from blood changes, and lastly an albuminuria with clear and distinct evidence of degenerative renal changes. While these names all have a more or less application to the various forms under which albuminuria is found, they do not describe accurately the condition, and consequently are misleading.

Clinical research has demonstrated that a considerable portion of individuals who present small and varied quantities of albumin in voided urine, are free from any indication of ill health; the problem to be dealt with then is, can the presence of albumin in the urine ever be considered physiological rather than pathological, or is it a

functional disturbance of the urinary secretion indicative of the oncome of structural derangement of the kidneys.

Intermittency is certainly a decided characteristic of many cases of albuminuria, and it is a good descriptive term of what may be the present condition of the individual. It is certainly not accurate, as in many cases, an earlier observation would probably have shown persistent albuminuria following an early acute nephritis. It is an established fact that the most numerous cases of intermittent albuminuria are found amongst acute nephritic convalescents, and if the condition continues for years it becomes persistent. We find record of case after case of albuminuria of transient and intermittent character apparently unconnected with any definite derangement of the circulatory, digestive, or nervous system. These cases, however, cannot be accepted without questioning their antecedent condition, which, by the way, is not forthcoming, and if they are traced to their termination we would probably hesitate before dismissing lightly a similar case as of no prognostic significance.

Excepting the albuminuria dependent upon acute nephritis, most early cases are intermittent, and arise usually from hyperæmia of the kidneys. In these cases, the congestion passes off, and the condition is ended. As in many other situations, one attack superinduces another, and a patient who has once suffered from albuminuria is liable to a return of the condition from any fresh exposure to the exciting cause. Naturally, if this state of hyperæmia continues for a long time, the over-distended capillaries become permanently enlarged, and albumin will constantly appear in the urine; and frequently-repeated attacks of hyperæmia of the kidneys—or albuminuria—will certainly lead to permanent organic mischief—chronic nephritis.

It has been demonstrated in many instances that even though years of apparent good health may intervene—this fleeting albuminuria means, sooner or later, positive renal disease. Consequently a prognosis is not to be based upon the presence or absence of albumin alone. It must be weighed accurately in the balance with the ability of kidneys to eliminate the waste products of the system, especially the maintenance of the proper daily excretion of urea. With a normal discharge of urea, careful management will do much to establish a condition in which the health of the individual will not suffer nor existence be appreciably shortened.

Latent is a term open to criticism. What is hidden to one observer may be clear to another, especially if the latter is an adept in this class of cases. The claim is well supported, that albumin may be

present where there is no other evidence of disordered health. The failure to detect albumin, in such individuals, would naturally reflect discredit upon the examiner, even though it may seem pardonable in the rush of practice. Disastrous results have supervened in more than one case of early trivial albuminuria owing to failure in recognition and subsequent treatment. A routine practice of examining the urine of all patients would clear up most so-called latent cases, provided the examiner followed the rule of George Johnson, and before deciding in favor of the absence of albumin, would test the urine after rest and fasting, that is, in the morning before breakfast, and after food and exercise, after dinner. Many times, exercise has far greater influence than food upon the presence of albumin.

Temporary albumin is a descriptive designation, true in part. Mahomed found albuminuria in several members of a small group of healthy people after sea-bathing. Johnson has published an article* on "Cases of Temporary Albuminuria, the Result of Cold Bathing," and Sir Andrew Clark has reported a large proportion of youths cramming for civil service examination, as having albuminuria, temporarily, at least. These cases arise, no doubt, from a condition of hyperæmia of the kidneys, due to cold or chill throwing the work of the skin upon the kidneys, thus increasing their work and hampering their circulation; or, it is a reflexed hyperæmia, or, a diminished arterial tension, resulting from a loss of vaso-motor tone. Albumin is usually, if not always, increased by influences tending to lower the tone of the nervous system; some authorities even claiming albumin to be, more often, a nervous or vaso-motor than a kidney symptom. An attack of hyperæmia of the kidneys is usually of limited duration, or is readily amenable to treatment. It runs its course and is done, although the subject is liable to repeated attacks.

Functional albuminuria and the so-called *physiological* albuminuria are still subjects of animated discussion. Is it the function of the kidneys to excrete albumin with the urine? If it is not, it is certainly erroneous to term an early albuminuria either functional or physiological. If an albuminuria is functional or physiological, how are we to fix the time or demarcation when the limit of benignity is reached and the permanently developed organic disease begins?

The temporary albuminuria following cold bathing, mental strain, severe muscular exercise, the ingestion of an albuminous diet, suggests

* Seventh vol. *Proceedings of the Clinical Society.*

a possible field of a true physiological albuminuria, but the term is not satisfactory. It has, however, gradually worked its way into common use, and it proclaims what seems to be an impossible condition. "Functional" is the more acceptable term of the two, but both are misleading. Senator,* Posner, Pavy and others earnestly advocate the cause of the existence of a physiological albuminuria—of albumin in normal urine which does not lead up to structural disease—claiming that urine, like all transudation fluids, normally contains albumin to a certain amount, and that this normal quantity of albumin may be increased without any true renal fault, presenting the condition of physiological albuminuria. Lécorché and Talamon oppose this position and maintain that a physiological albuminuria does not and cannot exist; that mere frequency in appearance of albumin in urine, even in those apparently healthy, is not sufficient to establish a true physiological albuminuria; and that there are no positive points of distinction between the albuminuria of the so-called physiological type and that due to actual renal disease. This is true; for certainly "apparently healthy" albuminurics do not necessarily demonstrate healthy kidneys, and they are very suggestive of beginning renal decay. Millard† claims that albuminuria has not been shown to exist physiologically and he states that albuminuria, either natural or artificial, does not occur except as a result of pathological changes in the kidneys, and is consequently never normal and physiological, and that it is always to be regarded with distrust. The weight of evidence favors the belief that every albuminuria above the lower urinary tracts is indicative of some lesion, however slight at times, in the renal structure.

What are we to understand by Pavy's *Cyclic* or the *postural* albuminuria of numerous observers? The albumin appears only in the morning on rising, due to the sudden changing of the body from the horizontal to the vertical position. If the patient remains in the former position, taking breakfast in bed, no albumin appears, or if the recumbent posture is again assumed it soon passes off.

Dukes graphically puts it that "our *habits* are cyclical and not the disease," claiming that if the individual rested in the upright position the disease in question would possess no cyclical character. Verco's views oppose this idea; he claims that position has little or nothing to do with the excretion of albumin; that it is due to cold; that if a patient lies uncovered and becomes chilled, albu-

* *Annual of the Universal Medical Sciences*, 1893.

† *Bright's Disease of the Kidneys*, third edition, pp. 44 and 55.

min will invariably appear; and if the patient is kept warm and free from currents of air, no albumin will be present even in the erect position.

The *albuminuria of adolescents*, dwelt upon by the late Dr. Moxon,* implying that the albumin at this period of life is, as a rule, the result of sexual self-abuse, is an ambiguous term, which, ten years after publication, gave rise to an animated discussion, participated in by most of the English authorities. Dukes, of Rugby, whose opportunity for the observation of boys is unexcelled, stated that he had tried over and over again to trace the albuminuria of this age to the prevalent vice incidental to this time of life, but he was never able to assign one case to this cause. That albuminuria is frequent in adolescents of both sexes is without question. He attributed it mainly to a pathological condition arising no doubt in, and exaggerated by, the general state of the system incidental to puberty. He agreed with Bencke and Huebner, "that the development of the heart at puberty is to be regarded as a very important phase in its development in regard both to the physiological and the pathological occurrences of this period of life. The large arterial vessels attain their relatively narrowest condition at this time of puberty." Thus, with increased heart development, and with relatively narrow arteries, there is consequently increased arterial tension. It is from this associated state of heart and vascular system that some of the most characteristic symptoms of albuminuria of adolescents arise. Da Costa† believes that the albuminuria of boys is probably, in the majority of instances, that of uric acid and oxaluria.

There can be no doubt that vascular tension, high or low, is a factor of great moment in all classes of albuminuria.

Spurious albuminuria is that in which the albumin is derived from other parts of the urinary system than the kidneys, such as catarrh of the renal pelvis, ureters, bladder, and vagina. Leucorrhœa is an exceedingly frequent cause of albumin in urine. H. Milton, of Cairo, Egypt, has called attention to a peculiar cause which may give rise to the continued presence of albumin in the urine, and cites a case of a woman where there was a persistence of some tubules of the Wolffian body—generally Gartner's duct—which discharge their albuminous contents into the vesical cavity. Another instance is slight gleet in young men, which will, at times, give rise to albumin in the urine. Pus, blood, or chyle are rare causes of albumin

* Guy's *Hospital Reports*, 1878.

† *The American Journal of the Medical Sciences*, January, 1893.

in the urine of children. The opposite condition holds good in adults.

Let the clinical variety of albumin be what it may. What is the significance of albumin in the urine in cases where there is an absence of renal epithelium, tube casts, etc., in the light of the research of the past two decades?

While the results of clinical observation still leave the question unsettled, we may generalize and claim that albumin in the urine is of considerably less importance than was formerly supposed. In Bright's day the albuminuric was immediately consigned to an early grave. To-day we know that albumin may be intermittently or persistently present for years and the patient enjoy excellent health. Dr. F. Hawkins relates a case of albuminuria of forty-three years' standing. A patient, a medical man, gave up practice, in 1841, on the advice of Dr. Bright, who gave as his opinion that the patient would not live two years. The urine at all times contained about a third albumin; specific gravity usually 1012. Nocturnal micturition the rule for the last eighteen years of the patient's existence. In 1887 sugar was detected, and persisted for eight months, and then disappeared. Pulse intermittent. Some cardiac hypertrophy. Heart sounds normal, excepting accentuated second sound at base. The patient died of cerebral hæmorrhage in 1892, being then 88 years of age.

Albumin certainly does not afford any indication of the gravity of the disease condition. Some recent writers claim that one-third to one-half of all cases of albuminuria are not due to renal disease at all. This is an extreme view, which will hardly stand the test of investigation; but admitting that a considerable proportion of individuals who exhibit small and varying quantities of albumin in the urine, present absolutely no other sign or symptom indicative of broken health, we certainly must realize that albumin in the urine cannot be held to be typical of perfect health; and its long continuance, whether in an intermittent or persistent form, must always be a source of more or less anxiety. While the prognosis is now far more hopeful, owing to the recognition that acute nephritis is curable, and that the chronic form, by judicious treatment, may be prolonged indefinitely—we must adopt, as a practical guiding principle, the axiom: albuminuria is always serious. Having once detected albumin in the urine, the first duty is to search for its cause. The mere quantity is really of little value. If there is a functional type of albuminuria the excretion of urea

should remain normal. The moment the daily excretion of urea is diminished organic renal disease is existing or it is at least impending. If we come against an acute infectious disease, as scarlet fever or diphtheria as a cause for the presence of albumin, it is reassuring to know that most cases of acute nephritis pass through the stage of intermittent-albuminuria on their way to recovery, and a hopeful prognosis is in order, provided the patient can be induced to submit for a sufficient length of time to the necessary medical, dietetic and hygienic treatment. The safety of such cases depends upon an early discovery, the completeness and carefulness with which the investigation is conducted, prompt and persistent treatment, and the recognition that there is a great and pressing need for long-continued watchfulness after recovery from an attack of albuminuria, especially if the disorder should have been of long duration.

Results following the negligent treatment in the early stages of what should have been trivial cases of albuminuria, are often disastrous. Over-feeding during convalescence from a specific fever, has, on more than one occasion produced albuminuria. Patients with inflammatory affections of the kidney should never receive a stimulating diet. It has been abundantly proven that albumin, even in large quantity, persisting for years in children and young adults, under proper care will pass away; but let the patient fret and grow restless under restraint, and commit errors in diet and habit, and expose himself to wet and cold, and the albuminuria will sweep from a mild intermittency to an intractable persistency, running either a rapid acute course or lasting for years, and ending in an incurable degeneration of the kidneys.

Albuminuria does not necessarily pass directly into Bright's disease. It may continue for one, two, five or more years and then disappear—thus presenting a curable chronic form. Many cases of albuminuria are attributable to heredity, while others are not traceable, having arisen and progressed insidiously. In such it is difficult, even if possible, to place a true value on the significance of the albumin. Again, we are not to be led into too favorable a prognosis by an absence of all indications of disordered general health, and dismiss the case as of no significance. Even though years may intervene, ultimately positive signs of the fatal inheritance will appear in the form of a marked renal lesion.

We may not accept the view of Dr. George Johnson, who sturdily maintains that albumin is always an indication of renal stress which sooner or later leads to organic disease unless the tendency is com-

bated by careful regimen—but it is certainly a safe rule of practice in handling *all* cases of albuminuria.

Inconstant albumin! Its presence in the urine not necessarily an indication of Bright's disease; nor its absence indicative that the individual has escaped the dread renal scourge.

